to be responsible for myocardial ischemia in patients with cardiac syndrome X (CSX), it has never been directly demonstrated, and the correlation between CMR and severity of myocardial ischemia has not been elucidated in this setting. This study aimed to ascertain the increased CMR directly and to explore the relationship between CMR and severity of ischemia in patients with CSX.

METHODS We studied 18 patients with CSX and 18 age- and sex-matched control subjects. Thermodilution derived coronary flow reserve and index of microvascular resistance were measured using a pressure-temperature sensor-tipped coronary wire. Exercise treadmill test was performed by the Bruce protocol for calculating Duke treadmill score.

RESULTS Coronary flow reserve was significantly lower (2.37±0.81 versus 3.68±0.72; P<0.001) and index of microvascular resistance was higher (33.1±7.9 versus 18.8±5.6 U; P<0.001) in patients with CSX compared with those in control subjects. The Duke treadmill score was correlated positively to coronary flow reserve (r=0.539; P=0.021) and negatively to index of microvascular resistance (r=−0.742; P<0.001) in patients with CSX.

CONCLUSIONS Using an intracoronary thermodilution method, we for the first time directly demonstrated an increased microvascular resistance in patients with CSX. Furthermore, severity of ischemia was found to be intimately associated with CMR in this setting.

GW26-e2972

Local Intracoronary Eptifibatide versus Mechanical Aspiration in Patients with Acute ST-Elevation Myocardial Infarction

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OBJECTIVES We compared local delivery of intracoronary eptifibatide via perfusion catheter to thrombus aspiration in primary PCI.

METHODS 75 patients with acute STEMI were randomized to three groups: 25 received local intracoronary eptifibatide and verapamil via perfusion catheter; 25 patients were managed by Diver CE thrombectomy device and 25 patients by primary PCI without thrombus aspiration. Primary end point was assessment of postprocedural TIMI flow, MPG, and corrected TIMI frame count (cTFC) in the culprit vessel.

RESULTS Perfusion catheter was superior to thrombus aspiration and conventional PCI as regards MBG (68% versus 36% in Diver CE and 20% in the control arm; P value = 0.002), with shorter cTFC rates than thrombectomy and control groups (20.76±4.44 versus 26.68±9.40 and 28.16±5.96 resp.). TIMI flow was not different between the 3 groups. Local intracoronary eptifibatide by perfusion catheter led to less time to peak CK (13.12 hours versus 16.5 and 19.5 hours, respectively, P value = 0.001).

CONCLUSIONS Local intracoronary eptifibatide by perfusion catheter reduces thrombus burden with better results in microvascular perfusion assessed by cTFC and MBG compared to aspiration device or conventional PCI.

GW26-e3587

Percutaneous coronary intervention in the circumflex artery of the left main coronary artery originating from the right sinus of Valsalva

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OBJECTIVES It is very rare that the left main coronary artery (LMCA) arises from the right sinus of Valsalva. Percutaneous coronary intervention (PCI) on an anomalous coronary artery remains a challenge for interventional cardiologists. In this case we successfully implanted a stent into the left circumflex artery on a patient with this kind of anomaly who suffered from acute coronary syndrome (ACS).

METHODS A 49-year-old man was admitted with diagnosis of ACS, non-ST-segment elevation myocardial infarction (NSTEMI). Coronary angiography was performed about 20 hours later with right radial approach. Angiographic results showed that the anomalous LMCA arose from an independent ostium in the right sinus of Valsalva. Angiography of the left circumflex artery (LCX) showed a 99% stenosis in the proximal portion. The left anterior descending artery (LAD) was very small and did not have serious stenosis. The right coronary artery (RCA) was found an about 70% stenosis in the ostium of the posterior descending artery (PDA). PCI on the LCX was performed by using a 6F Judkins right-guiding catheter (Cordis Corporation, USA). A 0.014" high torque floppy guidewire successfully went aross the lesion. A 2.75×23mm Everolimus eluting stent (Xience V stent, ABOTT, USA) was implanted after pre-dilation with a 2.5×20mm balloon (Ryujin Plus balloon, TERUMO, Japan). After stent implantation, we found diffused lesions from the middle to distal portion of the LCX. However, we failed to pass balloons through the tortuous mid-LCX. The PCI procedure had to be finished after attempt for about 30 minutes.

RESULTS The patient was discharged on cilostazol 50mg twice daily, clopidogrel 75mg once daily, metoprolol 12.5mg twice daily, perindopril 4mg once daily and rosuvastatin 10mg daily after stent implantation in good health status without any cardiac adverse event. One month later, multi-slice computed tomography (MSCT) confirmed the angiographic findings and demonstrated that the anomalous LMCA coursed through myocardium of the interventricular septum.

CONCLUSIONS There were few case reports described PCI in patients with coronary artery anomalies. In our case, it was very difficult to estimate the course of the anomalous culprit artery. How to select appropriate catheters to perform intervention had also remained a challenge. We chose a Judkins right-guiding catheter to perform PCI because the ostium of the LMCA was very close to that of the RCA in the right sinus of Valsalva. However, this guiding catheter may be not most suitable because the initial segment of the anomalous LMCA coursed in the similar direction of the RCA and then turned to the opposite direction which was demonstrate by the 64-slice CT examination. A left-guiding catheter, such as a TERUMO BL or an Amplatz short-tip catheter might be a better choice in this rare situation.

GW26-e3988

The efficacy and safety of balloon dilation in treating radial artery spasm

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OBJECTIVES To analyze the efficacy and safety of balloon dilation in treating radial artery spasm.

METHODS Continuously choose 18 patients who accepted coronary angiography via radial artery access successfully. But after angiography the radial artery spasm happened and guiding catheter could not pass the spasm position. The PTCA guide wire was delivered through guiding catheter into radial artery, then a 2.0×20mm balloon was sent to the spasm position and dilated in 8 atm for 20 seconds. Then balloon and guide wire were moved away, and the guiding catheter could pass through the spasm position successfully. After operation the patients were close observed to find whether the radial artery was injured.

RESULTS Guiding catheter could pass through the spasm position successfully in all the 18 patients after balloon dilation. And no radial artery injury observed.

CONCLUSIONS Balloon dilation was effective and safe in treating stubborn radial spasm.

GW26-e4424

Evaluation Intravascular ultrasound on the prognosis of patients with unstable angina pectoris

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OBJECTIVES Study on critical lesions with intravascular ultrasound (IVUS), to evaluate the value of IVUS to assess the prognosis of patients with unstable angina pectoris.

METHODS 104 cases in 2011 January to 2012 December in cardiovascular department of internal medicine Tangshan City workers hospital underwent coronary angiography (CAG) examination to determine the critical disease patients, 48 cases were examined with IVUS after interventional therapy, in group A, 56 cases without IVUS examination, in group B. The lesion is vascular external elastic membrane area, minimum lumen area, plaque burden were measured using intravascular ultrasound. 2 year follow-up of patients, divided after 1, 3, 6, 12 and 24 months of follow-up, the evaluation of angina attack, nonfatal acute myocardial infarction and readmission, compare the differences between the two groups of patients.

RESULTS Two groups of angina, non fatal myocardial infarction and readmission occurred with a statistically significant difference at 24 months ($p<0.05$), but no significant differences in other follow-up time ($p>0.05$). Follow up of 24 months, 10 patients in the A group recurrence of angina pectoris (23.26%), non fatal myocardial infarction in 0 cases. The B group had recurrence of angina pectoris in 24 cases (42.86%) of 5 cases of non fatal myocardial infarction (12.5%), a statistically significant.

CONCLUSIONS An important basis for

1. IVUS examination can be used as critical lesion for interventional therapy.
2. IVUS check the critical disease intervention to obtain a relatively high success rate and good clinical outcome.

GW26-e4507

Low-dose adjunctive cilostazol in patients with complex lesions undergoing percutaneous coronary intervention

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OBJECTIVES Emerging studies suggest that patients with complex coronary lesions undergoing percutaneous coronary intervention (PCI) have more major adverse cardiac events (MACE) than do those with simple ones. Intensive antiplatelet therapy could reduce recurrent ischemic events in the patients with complex lesions. In the present study, we evaluated the safety and efficacy of routine dual antiplatelet therapy plus low-dose cilostazol in patients with complex coronary lesions undergoing PCI.

METHODS A total of 127 patients with complex lesions undergoing PCI in Cardiology Department of the Second Hospital of Tianjin Medical University from October 2012 to April 2014 were randomized to receive: dual (aspirin plus clopidogrel, DAPT, n =66) or triple antiplatelet therapy (aspirin plus clopidogrel plus cilostazol, TAPT, n=61). Patients in the TAPT group received adjunctive cilostazol (100mg loading, followed by 50mg BID) for 3-6 months. The primary endpoint was composite major adverse cardiac events (MACE). The complex coronary target lesions were defined as at least one of followings: left main disease, severe 3-vessel disease, chronic total occlusion (CTO) lesions, true bifurcation lesion (Medina classification: 1.1.1), ostial lesions of main vessels and highly thrombotic lesions.

RESULTS The 2 groups had similar baseline clinical and angiographic characteristics. One-year clinical outcomes showed that the TAPT group had significantly lower incidence of myocardial infarction (1.6% vs 13.6%, P =0.018) and MACE (1.6% vs 16.7%, P =0.004) than did the DAPT group. The DAPT group had 2 cases of stent thrombosis, while the TAPT group didn't have. Furthermore, low-dose adjunctive cilostazol didn't significantly increase the incidence of bleeding events (26.2% vs 19.7%, P =0.381) regardless of major (4.9% vs 4.5%, P =0.921) or minor (21.3% vs 15.2%, P =0.368) events.

CONCLUSIONS Low-dose adjunctive cilostazol seems to be superior to dual antiplatelet therapy in reducing recurrent ischemic events with similar rates of bleeding events in patients with complex coronary lesions. Further study with larger population will be needed to get the definite conclusions.

GW26-e5430

Serum CTRP5 is associated with in-stent restenosis after percutaneous coronary intervention

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OBJECTIVES To investigate the relationship of serum C1q/TNF-related protein 5 (CTRP5) with coronary artery restenosis after drug-eluting stent (DES) based percutaneous coronary intervention (PCI).

METHODS Clinical characteristics, biochemical measurements, medical treatments, left ventricular ejection fraction (LVEF), serum CTRP5and coronary interventional features were assessed in 258 consecutive patients with angiographic ISR and 260 age- and sex-matched patients without ISR at one-year after PCI with sirolimus-eluting stent implantation. Multivariate Logistic regression analysis was performed to determine the independent factors for ISR.

RESULTS Compared with non-ISR patients, those with ISR had higher incidence of prior myocardial infarction and were more likely to be diabetic and cigarette smokers. Serum levels of low-density lipoprotein cholesterol (LDL-C), apoliprotein B, high-sensitivity C-reactive protein, and glycosylated hemoglobin were higher, but LVEF was lower in patients with ISR. Despite similar degree of coronary disease and site of stent implantation, stent diameter was smaller, stent length was longer, and bifurcation stenting was more common in patients with ISR. The level of CTRP5 in ISR group was significantly higher than that in the control group ($P < 0.05$). Multivariate Logistic regression analysis revealed that prior myocardial infarction (OR=3.23), diabetes (OR=2.33), cigarette smoking (OR=1.85), elevated hs-CRP(OR=1.06), LDL-C (OR=1.30), and CTRP5 (OR=1.51), and greater stent length (OR=1.08) were independent risk factors for ISR, whereas stent diameter (OR=0.39) and LVEF (OR=0.94) were inversely associated with ISR (all $P<0.05$).

CONCLUSIONS ISR after sirolimus-eluting stent implantation was related to multiple clinical and coronary angiographic and interventional factors. Elevated serum CTRP5 level is an independent predictor for ISR. Optimal control of traditional risk factors and improvement of left ventricular function were crucial in reducing ISR, particularly for patients with small vessel disease, long lesion (stents) and bifurcation stenting. AR-SA'>, apoliprotein B, high-sensitivity C-reactive protein, and glycosylated hemoglobin were higher, but LVEF was lower in patients with ISR. Despite similar degree of coronary disease and site of stent implantation, stent diameter was smaller, stent length was longer, and bifurcation stenting was more common in patients with ISR. The level of CTRP5 in ISR group was significantly higher than that in the control group ($P < 0.05$). Multivariate Logistic regression analysis revealed that prior myocardial infarction (OR=3.23), diabetes (OR=2.33), cigarette smoking (OR=1.85), elevated hs-CRP(OR=1.06), LDL-C (OR=1.30), and CTRP5 (OR=1.51), and greater stent length (OR=1.08) were independent risk factors for ISR, whereas stent diameter (OR=0.39) and LVEF (OR=0.94) were inversely associated with ISR (all $P<0.05$).

GW26-e2932

A practical technique to protect the side branch during PCI for coronary bifurcation lesions: Side branch balloon opening technique

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OBJECTIVES Coronary bifurcations (CB) are frequently encountered and remain to be one of the most challenging lesion subsets for coronary intervention. The main strategy nowadays to treat CB lesions is the crossover technique. In brief, a stent was firstly implanted in the main vessel and then branch kissing balloon or the stent-angioplasty performed in the side branch according to the side branch stenosis.

METHODS Detailed steps are as follows:

(1) both SB and the main vessel are wired and then the small-diameter balloon is advanced into the SB beforehand and makes sure that the proximal portion of the balloon protrudes into the main branch at a distance of 2 mm.

(2) After the main vessel predialation and stent implantation, release the stent with minimum named pressure (8-10 atm).

(3) During the main vessel stent released with minimum named pressure (10 atm), Sequent balloon in the ostium of side branch is opening with6-8atm.

(4) After the 2.0×15 mm balloon was removed, the main vessel stent balloon released with more pressure (14-16 atm), or A NC-Sprinter balloon was put into the stent and post-dilated with 16 atm pressure.

Here we present one case of coronary heart disease, which performed this approach for side coronary bifurcations.

RESULTS The branch balloon opening technique has the following advantages over the traditional side branch wire protection. It can prevent the ostium of the side branch from aggravation. The stent implantation in the main vessel makes the plaque shift or change the kind of the stenosis, which will leads the compromise of the ostiumof the side branch, occlusion or severe stenosis. Though there is report that the jailed balloon can protect the ostium of the side branch, but the just keep the balloon there or balloon the stent first. Here we used the technique that balloon open first and then stent in nominal pressure, the key point is that the opened balloon in the ostium can